

# THE CODE FOR SUSTAINABLE HOMES

## St John's Vicarage, Wembley for the London Diocesan Fund

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The London Diocesan Fund, in partnership with ASRA Greater London Housing Association, have commissioned a new vicarage in the parish of Wembley, St John as part of a mixed use development including social housing and a church hall. This vicarage is one of the first in the country designed to comply with Level 6 of the Code for Sustainable Homes (the Code) and demonstrates the Fund's commitment to sustainability and the environment. This paper explores key issues relating to the Code and the experiences of this project.

### What is a Code 6 dwelling?

The Code is an environmental assessment method developed for the Department for Communities and Local Government in 2007 for new-build dwellings. It is now mandatory to assess all new dwellings in England under this scheme. The Code rates the sustainability of the dwelling by awarding credits across a number of categories including energy usage, pollution and waste, and health and wellbeing. It addresses both construction and 'in-use' aspects of the dwelling; Code 1 being the lowest level and Code 6, the highest, achieving a sustainable zero carbon home.

### What makes this a Code 6 dwelling compared to a standard new-build dwelling?

The Code 6 detailed vicarage specification by Wilson Stephen Associates, the Fund's project managers, required the energy rating of the dwelling to have more than a 100% improvement above the Building Regulations notional building as defined in Approved Document Part L and the SAP calculation methodology. The required CO<sub>2</sub> emissions are zero, necessitating renewable technologies designed to offset all the emissions produced from the heating, hot water systems and occupant's appliances.

The vicarage includes controlled water usage, rainwater harvesting, vertical-bore ground source heat pumps, whole-house ventilation with heat recovery and

photovoltaic arrays. Grey-water harvesting was not necessary. The success of the design very much depends on the attention to detail from the main contractor, Galliford Try Partnership, and rigorous monitoring of the construction processes is ongoing in conjunction with BSRIA Limited, the Fund's appointed Code consultant. High standards of insulation and air-tightness are key to minimising heat loss.

The Church Commissioners' publication, *Parsonages: A Design Guide*, details the recommendations for vicarage design and performance but differs slightly in emphasis to the Code. However, there is sufficient flexibility within the interpretation of both requirements to procure an acceptable design solution.

### What are the planning considerations?

The Code 6 dwelling created planning benefits. The retention of the existing ecological infrastructure along with enhanced landscaping provisions and sustainable on-site energy generation was well received. Such proposals along with compliance to Lifetime Homes standards are likely to find favour with the published policies of most planning authorities. However, early consultation with planning authorities is essential as the physical characteristics of the technologies required to achieve Code 6 affect a wide range of parameters including roof design, aspect, impact of local environment and day-lighting.

### What site considerations are applicable for a Code 6 dwelling?

A Code 6 dwelling is likely to be more readily achievable on a brown-field site with low or little existing ecological value and minimal solar shading. An assessment of the intended technologies on the surrounding environment is also important requiring particular attention to ground conditions and water permeability.

This vicarage site proved particularly challenging in relation to building aspect and solar shading but notwithstanding these conditions, a solution has been developed through the employer's agent, Cyril Silver & Partners LLP, and architects, Calford Seaden LLP.

### Could anyone build it?

A Code 6 dwelling can be constructed by any competent contractor; however extensive technical knowledge and experienced design and construction management are essential. The process typically involves extensive administration including construction material source certification, design assessments, CO<sub>2</sub> monitoring, SAP production and analysis and waste recycling. The Galliford Try Partnership's in-house project team enables them to deliver the required holistic construction approach.

### Do Code 6 properties have to be new-build?

The Code is designed for new-build dwellings only. Refurbished properties use the



BRE EcoHomes 2006 scheme, although a Domestic Refurbishment Assessment scheme is currently being trialled.

### What is the percentage of additional costs to build a Code 6 over a standard dwelling?

A straightforward new vicarage would normally equate to Code 3 level. The financial uplift to achieve the vicarage Code 6 is 22%. Clearly, each project will differ depending on site

constraints, ground conditions and renewable technologies installed.

### What would the carbon footprint be of a Code 6 dwelling?

A Code 6 dwelling is zero carbon operationally with the predicted occupancy energy load being displaced through renewable technologies. Carbon footprints, however, will vary but the vicarage dwelling emission

rate is anticipated to be - 5.25 Kg CO<sub>2</sub>/m<sup>2</sup>/yr.

### How much energy does a Code 6 dwelling save?

A Code 6 vicarage should produce significant energy savings compared to a standard dwelling. However, most electricity-generating renewable technologies cannot operate at peak generation throughout the year. This vicarage energy target is 5072 kWh/yr compared to

14193kWh/yr for a Part L 2010 dwelling or 164193 kWh/yr for a Part L 2006 dwelling.

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# TESTING TIMES - NEW IDEAS

## Dr Steve Thompson, Science and Innovation Promoter, British High Commission, New Zealand

Policy directions in many countries are moving to link science closely with innovation and commercial exploitation. New Zealand and Britain are no exceptions and both countries are strengthening their incentives for adding commercial value from science. There is a natural fit between New Zealand's practical creativity and the UK's own innovation system, which can combine to access capital and penetrate world markets.

The UK added encouragement to UK-NZ links with the creation in 2007 of a Science and Innovation Promoter (SIP) position at the High Commission in Wellington. The SIP's aim is to develop practical and commercialisable research collaborations between the UK and New Zealand.

The first year of operation was characterised by start-up and two missions to NZ: Greenhouse Gases and Ag/Bio. Subsequent missions have concentrated on the

Ag/Bio/Food area, Clean Energy and Technology, Textiles, Sensors and Extremophiles (organisms which live in extreme conditions). Results over the three years to date have reaped over 50 "Significant Assists", and 7 concrete collaborations instigated by, plus a further 5 collaborations assisted by, the SIP.

Times are tough in both countries right now, and redoubled efforts are needed to build new collaborations. Close liaison with UKTI's New Zealand team ensures that these missions are jointly advertised to cover the spectrum from R&D through to investment, and trade, with UKTI being responsible for trade and investment. The SIP is able to bid for BIS funding to assist missions, while UKTI must charge for many of its services. It has thus been important to define the area(s) of common interest and the point at which the research role hands over to UKTI, and a set of liaison

principles has been evolved over time:

1. The SIP's remit starts at the research end of the spectrum in order not to invade UKTI space, but the focus is on commercially-orientated research - ie collaborations which stand a good chance of developing exploitable IP. This may involve research organisations with a commercial orientation and/or the research arms of companies.
2. The SIP can bid for BIS funding to assist visits, as long as the visitors a) can demonstrate their interest at the research end of the spectrum, b) are seriously interested in collaboration, and c) couldn't come without assistance.
3. The SIP keeps UKTI Auckland informed as ideas for missions are developed. As the interests of mission participants become clear, UKTI Auckland identifies those participants

who might benefit from, and be chargeable for, its services. If an investment angle emerges from an R&D visit, this is passed to UKTI to follow through.

Concrete collaborations are the name of the game, but behind the scorecard, much work goes into nurturing promising linkages in both the UK and New Zealand. Seminars and workshops give New Zealanders an up-to-date picture of UK capabilities, but UK organisations are often unsure of NZ capabilities and are unwilling to visit unless some brokering has taken place beforehand. A new initiative this year will be to twin UK S&I organisations with their counterparts in New Zealand, so that a natural stream of information flows between the two countries.

And on top of that, there's the rugby world cup towards the end of 2011. Now that's a good reason to visit!

